SSFM INTERNATIONAL, INC.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
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Project Managers, Planners, & Engineers
American Council of Engineering Companies, Member

Farrington Highway: Replacement of Maipalaoa Bridge
CWB-NOI CBMP Plan

Attachment A.9 – Construction Drawings

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(21)	2013	6	93

WATER POLLUTION AND EROSION CONTROL NOTES:

A. GENERAL:

1. See Section 209 - Temporary Water Pollution, Dust and Erosion Control. Section 209 describes but is not limited to: submittal requirements; scheduling of a water pollution and erosion control conference with the Engineer; construction requirements; method of measurement; and basis of payment.

2. Effective October 1, 2008, follow the guidelines in the "Construction Best Management Practices Field Manual", dated January 2008 in developing, installing and maintaining the Best Management Practices (BMP) for the project.

3. Follow the guidelines in the Honolulu's City & County "Rules Relating to Soil Erosion Standards and Guidelines" along with applicable Soil Erosion Guidelines for projects on Maui, Molokai, Kauai, and Hawaii.

4. The Engineer may assess liquidated damages of up to $27,500 for non-compliance of each BMP requirement and each requirement stated in Section 209, for every day of non-compliance. There is no maximum limit on the amount assessed per day.

5. The Engineer will deduct the cost from the progress payment for all citations received by the Department for non-compliance, or the Contractor shall reimburse the State for the full amount of the outstanding cost incurred by the State.

6. For projects that require an NPDES Permit from the Department of Health, install a rain gage prior to any field work including the installation of any site-specific best management practices. The rain gage shall have a tolerance of at least 0.05 inches of rainfall, and have an opening of at least one-inch in diameter. Install the rain gage on the project site in an area that will not deter rainfall from entering the gage opening. The rain gage installation shall be stable and plumbed. Do not begin field work until the rain gage is installed and site-specific best management practices are in-place.

B. WASTE DISPOSAL:

1. Waste Materials

Collect and store all waste materials in a securely lidded metal dumpster. The dumpster shall meet all local and State solid waste management regulations. Deposit all trash and construction debris from the site in the dumpster. Empty the dumpster a minimum of twice per week or as often as is deemed necessary. Do not bury construction waste materials onsite. The Contractor's supervisory personnel shall be instructed regarding the correct procedure for waste disposal. Post notices stating these practices in the office trailer and the Contractor shall be responsible for seeing that these procedures are followed.

2. Hazardous Waste

Dispose all hazardous waste materials in the manner specified by local or State regulations and by the manufacturer. The Contractor's site personnel shall be instructed in these practices and shall be responsible for seeing that these practices are followed.

3. Sanitary Waste

Collect all sanitary waste from the portable units a minimum of once per week, or as required.

C. EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES:

1. Inspect all control measures at least once each week and within 24 hours of any rainfall event of 0.5 inches or greater within a 24 hour period.

2. Maintain all measures in good working order. If repair is necessary, it shall be initiated within 24 hours after the inspection.

3. Remove built-up sediment from silt fence when it has reached one-third the height of the fence.

4. Inspect silt screen or fence for depth of sediment, tears, to verify that the fabric is securely attached to the fence posts or concrete slab and to verify that the fence posts are firmly in the ground. Inspect and verify the bottom of the silt screen is buried a minimum of 6 inches below the existing ground.

5. Inspect temporary and permanent seeding and planting for bare spots, washouts and healthy growth.

6. Make a maintenance inspection report promptly after each inspection. Submit a copy to the Engineer no later than one week from the date of the inspection.

7. Provide a stabilized construction entrance to reduce vehicle tracking of sediments. Include stabilized construction entrance in the Water Pollution, Dust, and Erosion Control submittals. Minimum length should be 50 feet. Minimum width should be 30 feet. Minimum depth should be 12 inches or as recommended by the soils engineer and underlain with geo-textile fabric. Clean the paved street adjacent to the site entrance daily or as required to remove any excess mud, cold planed materials, dirt or rock tracked from the site. Cover dump trucks hauling material from the construction site with a tarpaulin.

8. Include designated Concrete Washout Area(s) in the Water Pollution, Dust, and Erosion Control submittals.

9. Submit the name of a specific individual designated responsible for inspections, maintenance and repair activities and filling out the inspection and maintenance report.

10. Personnel selected for the inspection and maintenance responsibilities shall receive training from the Contractor. They shall be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order.

11. Contain, remove, and dispose slurry generated from saw cutting of pavement in accordance with approved BMP practices. Payment for confinement, removal, and disposal of slurry shall be considered incidental to the various contract items.

D. GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES:

1. Materials Pollution Prevention Plan

a. Applicable materials or substances listed below are expected to be present onsite during construction. Other materials and substances not listed below shall be added to the inventory.

Concrete	Fertilizers
Detergents	Petroleum Based Products
Paints (enamel and latex)	Cleaning Solvents
Metal Studs	Wood
Tar	Masonry Block

b. Use Material Management Practices to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff. Make an effort to store only enough product as is required to do the job.

c. Store all materials stored onsite in a neat, orderly manner in their appropriate containers and if possible under a roof or other enclosure.

d. Keep products in their original containers with the original manufacturer's label.

e. Do not mix substances with one another unless recommended by the manufacturer.

f. Whenever possible, use a product up completely before disposing of the container.

g. Follow manufacturer's recommendations for proper use and disposal.

h. Conduct a daily inspection to ensure proper use and disposal of materials onsite.

2. HAZARDOUS MATERIAL POLLUTION PREVENTION PLAN

a. Keep products in original containers unless they are not resealable.

b. Retain original labels and material safety data sheets (MSDS).

c. Dispose of surplus products according to manufacturers' instructions and local and State regulations.

E. PERMIT REQUIREMENTS:

1. If a National Pollutant Discharge Elimination System (NPDES) Permit is required for Construction Activities of one acre or more, submit to the Engineer six sets of the Water Pollution and Erosion Control Submittals as detailed in Subsection 209.03 of the specifications.

2. If an NPDES Permit for Construction Dewatering is required, the Contractor shall be responsible to obtain the Permit from the Department of Health, Clean Water Branch.

3. Comply with all applicable State and Federal Permit conditions. Permits may include but are not limited to the following:

a. NPDES Permit for Construction Activities
b. NPDES Permit for Construction Dewatering
c. NPDES Permit for Hydrotesting Waters
d. Water Quality Certification
e. Stream Channel Alteration Permit
f. Section 404 Army Corps of Engineer Permit

ORIGINAL PLAN
NOTE BOOK
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DESIGNED BY
QUANTITIES BY
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EXPIRATION DATE OF THE LICENSE

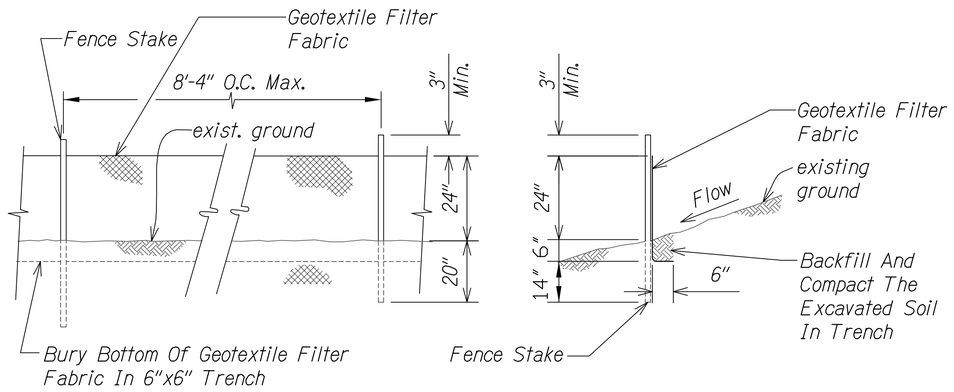
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WATER POLLUTION, EROSION CONTROL
NOTES AND DETAILS - 1
FARRINGTON HIGHWAY
REPLACEMENT OF MAIPALAOA BRIDGE
FEDERAL AID PROJECT NO. BR-093-1(21)

Scale: AS NOTED Date: JULY 2011

SHEET No. 1 OF 2 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(21)	2013	7	93

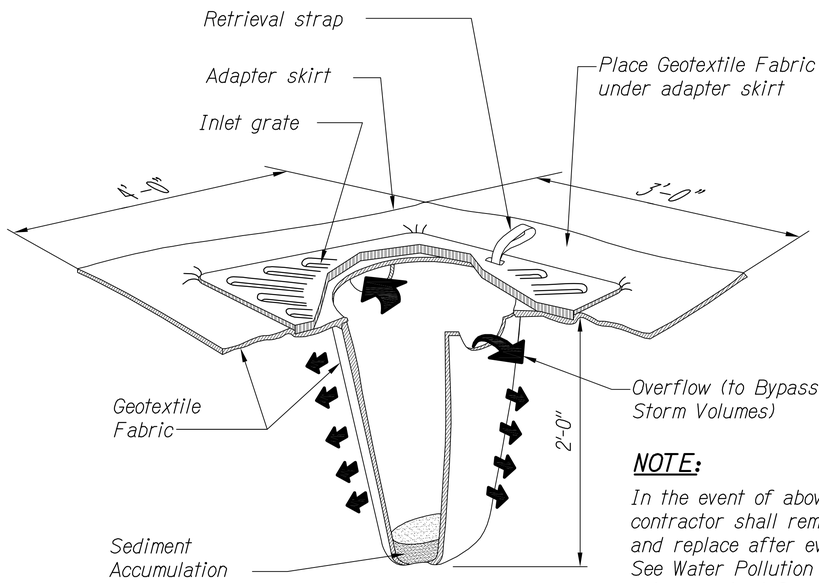


NOTES:

1. The Filter Fabric Shall Be A Minimum Of 36 Inches Wide.
2. If Silt Fence Is Obtained From Manufacturer As A Package (i.e. Fabric Attached To Post) The Manufacturer's Installation Instruction Shall Be Adhered To.
3. Fence Stakes May Be Wood Or Metal, Must Be Capable Of Supporting Anticipated Loads.
4. See Water Pollution and Erosion Control Notes on sheet 6.

SILT FENCE DETAIL

Scale: N.T.S.

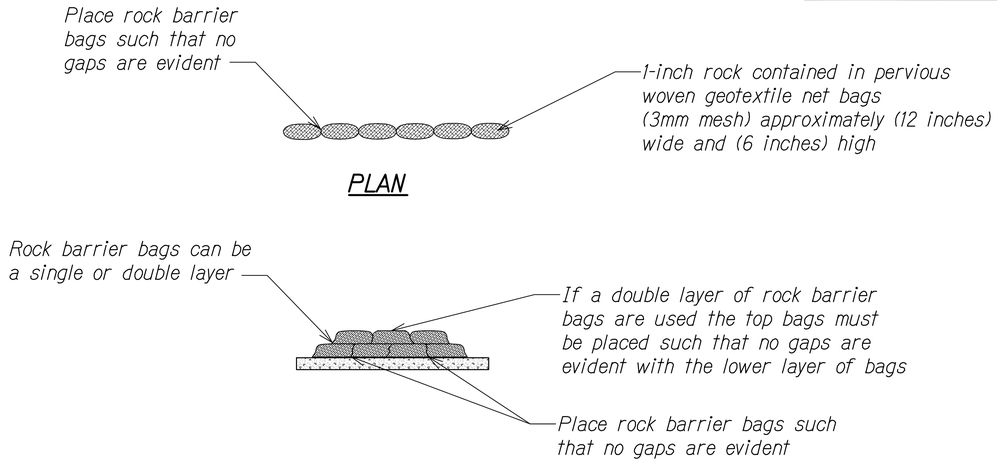


NOTE:

In the event of above normal rainfall, contractor shall remove inlet protection and replace after event has passed. See Water Pollution and Erosion Control notes on sheet 6.

TEMPORARY INLET PROTECTION DETAIL

Scale: N.T.S.



NOTE:

In the event of above normal rainfall, contractor shall remove inlet protection and replace after event has passed. See Water Pollution and Erosion Control Notes on sheet 6.

GEOTEXTILE ROCK BAG PROTECTION

Scale: N.T.S.

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HIGHWAYS DIVISION

WATER POLLUTION, EROSION CONTROL

NOTES AND DETAILS - 2

FARRINGTON HIGHWAY

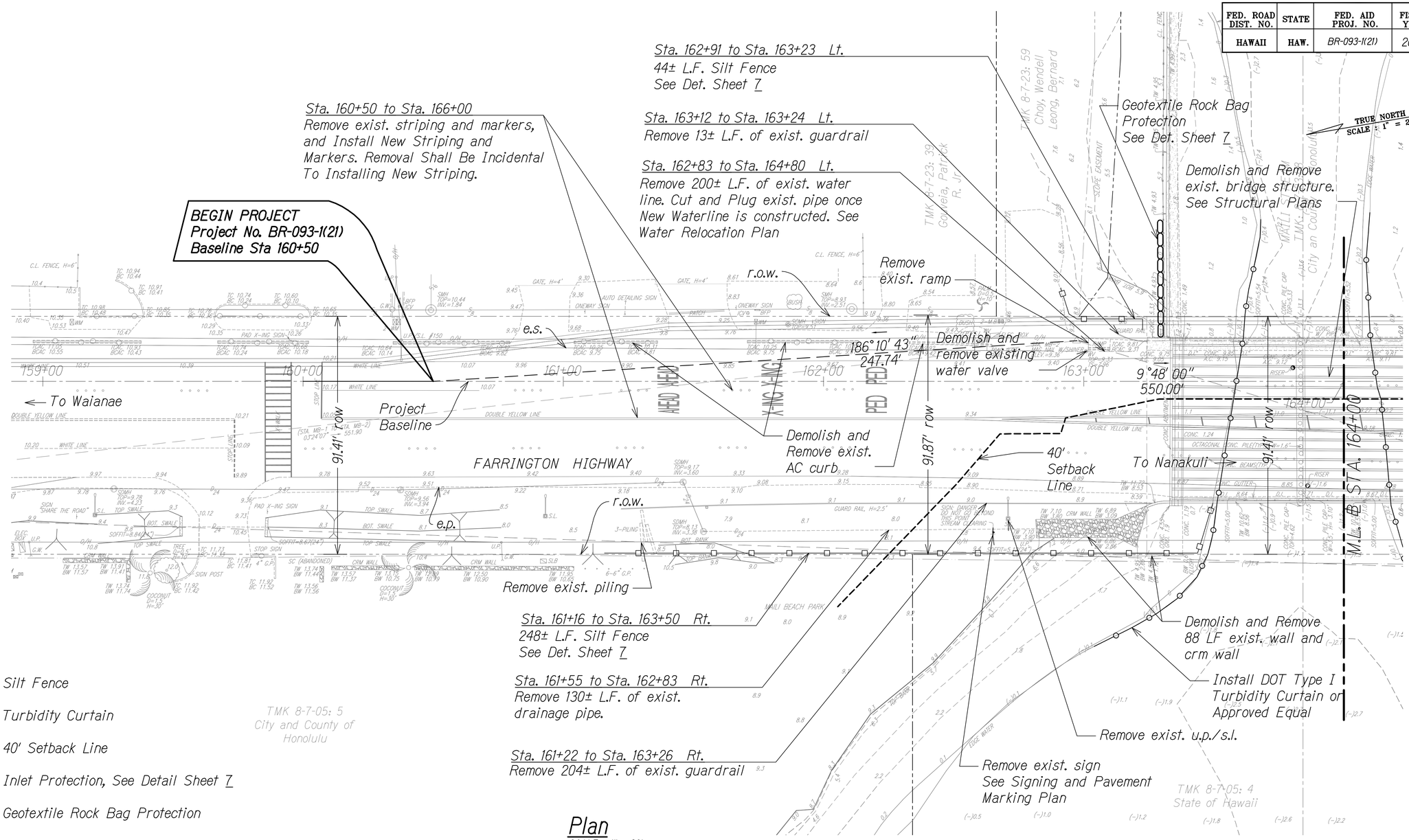
REPLACEMENT OF MAIPALAOA BRIDGE

FEDERAL AID PROJECT NO. BR-093-1(21)

Scale: AS NOTED Date: JULY 2011

SHEET No. 2 OF 2 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(21)	2013	9	93



LEGEND:

- Silt Fence
- Turbidity Curtain
- 40' Setback Line
- Inlet Protection, See Detail Sheet 7
- Geotextile Rock Bag Protection

Plan

SCALE: 1" = 20'

NOTES:

1. Survey conducted by Control Point Surveying, Inc. dated 3/31/2009.
2. Underground utilities shown are for information only. Contractor shall be responsible to verify prior to construction.
3. Contractor shall demolish and remove existing Maipalaoa Bridge in Phases to allow two lanes of traffic flow (each direction) at all times.
4. The erosion control measures represent only a minimum requirement. Contractor shall take proper precautions and make necessary measures to ensure compliance to all applicable but not limited to HDOH, EPA, Hawaii State and County agencies guidelines.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

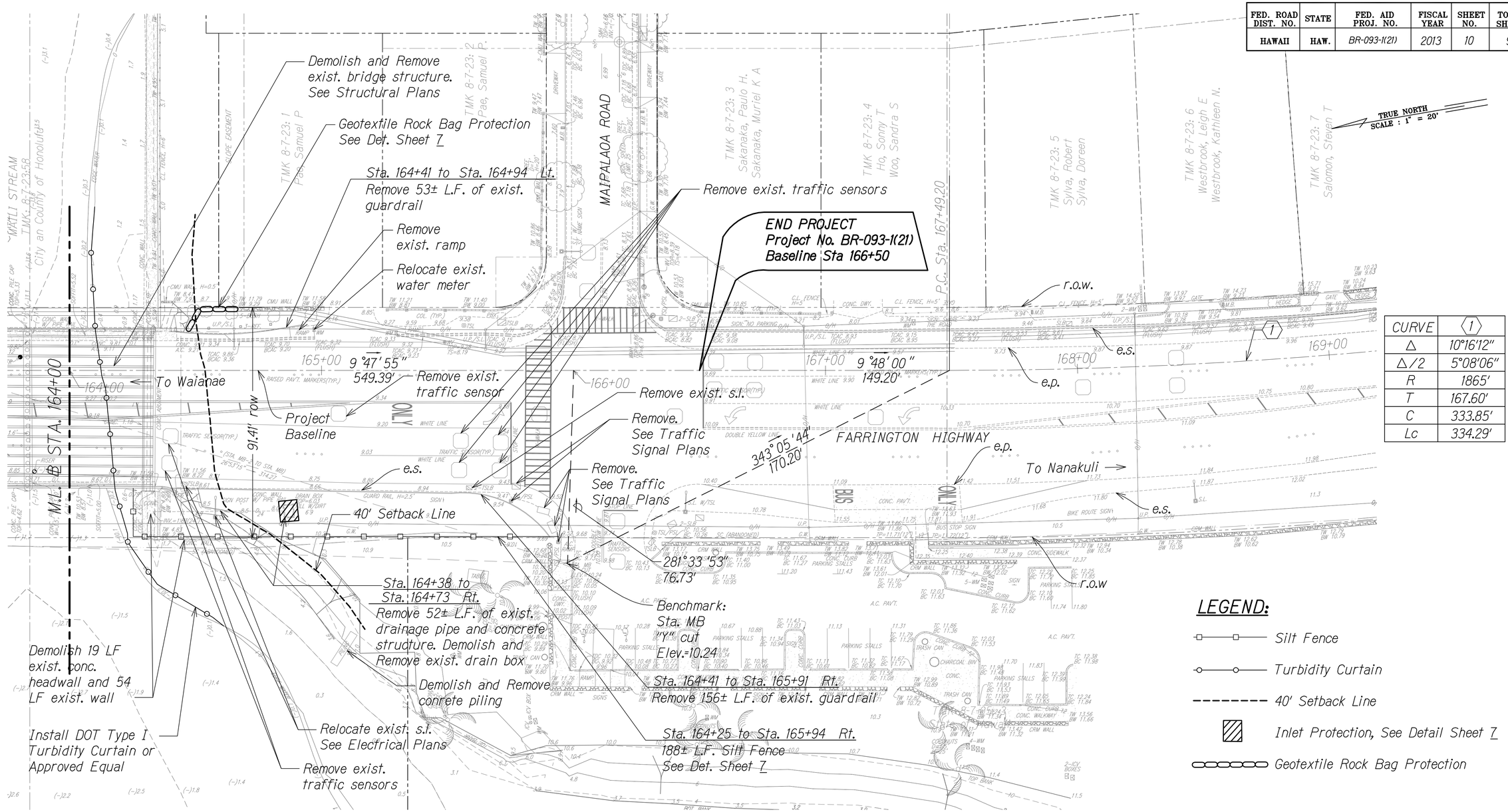
EXISTING CONDITION, DEMOLITION AND EROSION CONTROL PLAN - 1

FARRINGTON HIGHWAY
REPLACEMENT OF MAIPALAOA BRIDGE
FEDERAL AID PROJECT NO. BR-093-1(21)

Scale: AS NOTED Date: JULY 2011

SHEET No. 1 OF 2 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(21)	2013	10	93



CURVE	1
△	10°16'12"
△/2	5°08'06"
R	1865'
T	167.60'
C	333.85'
Lc	334.29'

LEGEND:

- Silt Fence
- Turbidity Curtain
- 40' Setback Line
- Inlet Protection, See Detail Sheet 7
- Geotextile Rock Bag Protection

Plan

SCALE: 1" = 20'

NOTES:

1. Survey conducted by Control Point Surveying, Inc. dated 3/31/2009.
2. Underground utilities shown are for information only. Contractor shall be responsible to verify prior to construction.
3. Contractor shall demolish and remove existing Maipalaoa Bridge in Phases to allow two lanes of traffic flow (each direction) at all times.
4. The erosion control measures represent only a minimum requirement. Contractor shall take proper precautions and make necessary measures to ensure compliance to all applicable but not limited to HDOH, EPA, Hawaii State and County agencies guidelines.

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

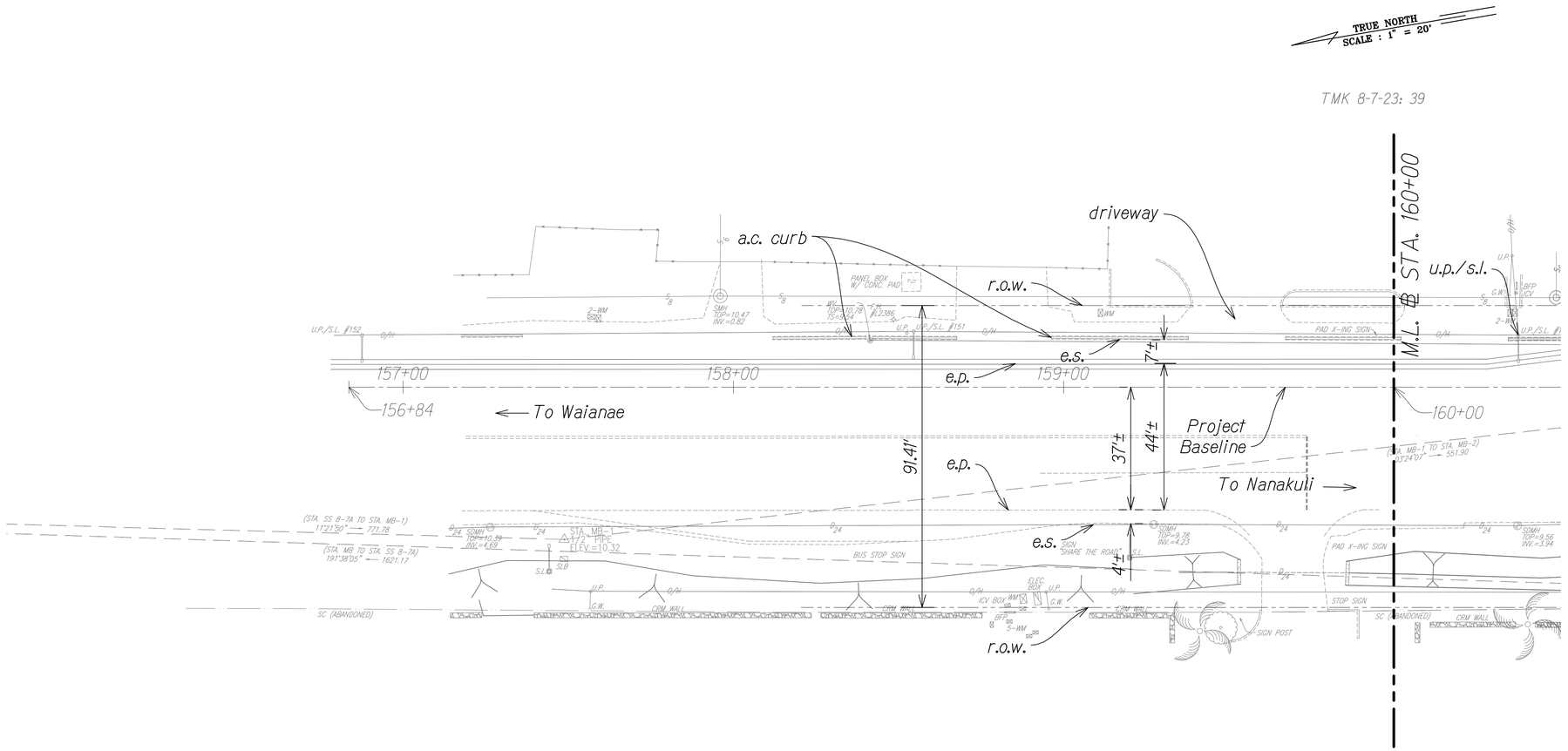
EXISTING CONDITION, DEMOLITION AND EROSION CONTROL PLAN - 2

FARRINGTON HIGHWAY
REPLACEMENT OF MAIPALAOA BRIDGE
FEDERAL AID PROJECT NO. BR-093-1(21)

Scale: AS NOTED Date: JULY 2011

SHEET No. 2 OF 2 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(21)	2013	13	93



TMK 8-7-05: 5

Roadway Plan
SCALE: 1" = 20'

GRAPHICAL SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

ORIGINAL PLAN
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HIGHWAYS DIVISION

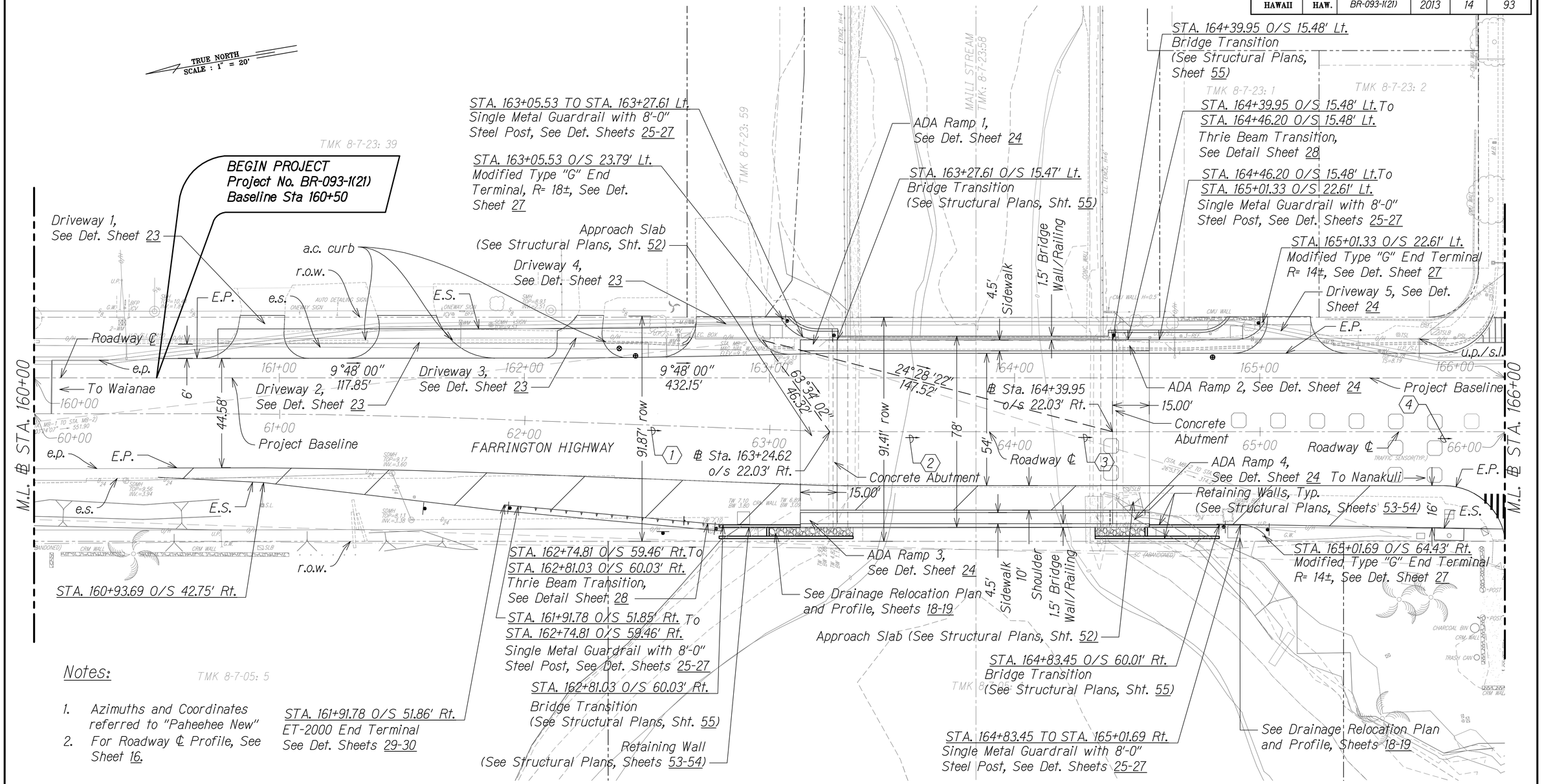
ROADWAY PLAN - 1

FARRINGTON HIGHWAY
REPLACEMENT OF MAIPALAOA BRIDGE
FEDERAL AID PROJECT NO. BR-093-1(21)

Scale: AS NOTED Date: JULY 2011

SHEET No. 1 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(21)	2013	14	93



Notes:

1. Azimuths and Coordinates referred to "Paheehee New"
2. For Roadway ℄ Profile, See Sheet 16.

Roadway Plan

SCALE: 1" = 20'

GRAPHICAL SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

ROADWAY ℄	1	2	3	4
AZIMUTH	11°55'50"	9°48'00"	9°48'00"	9°48'00"
DISTANCE	156.26'	31.00'	151.00'	69.00'

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HIGHWAYS DIVISION

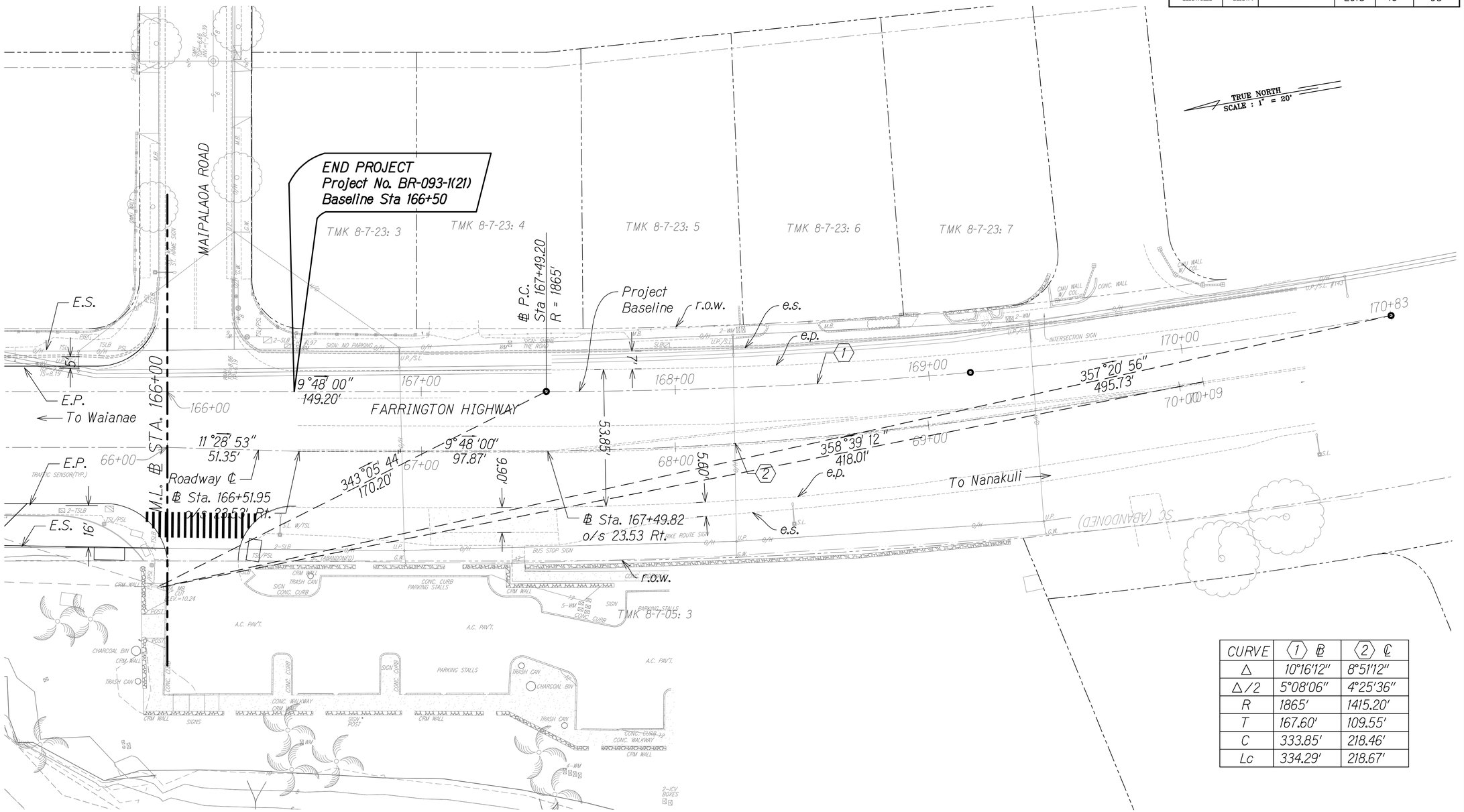
ROADWAY PLAN - 2

FARRINGTON HIGHWAY
REPLACEMENT OF MAIPALAOA BRIDGE
FEDERAL AID PROJECT NO. BR-093-1(21)

Scale: AS NOTED Date: JULY 2011

SHEET No. 2 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(21)	2013	15	93



CURVE	1 ℄	2 ℄
Δ	10°16'12"	8°51'12"
Δ/2	5°08'06"	4°25'36"
R	1865'	1415.20'
T	167.60'	109.55'
C	333.85'	218.46'
Lc	334.29'	218.67'

Roadway Plan
SCALE: 1" = 20'

GRAPHICAL SCALE:
20' 10' 0 20' 40'
SCALE: 1" = 20'

ORIGINAL PLAN
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HIGHWAYS DIVISION

ROADWAY PLAN - 3

FARRINGTON HIGHWAY
REPLACEMENT OF MAIPALAOA BRIDGE
FEDERAL AID PROJECT NO. BR-093-1(21)

Scale: AS NOTED Date: JULY 2011

SHEET No. 3 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(21)	2013	17	93

TRUE NORTH
SCALE : 1" = 20'

Driveway-1
See Detail
Sheet 23

Sta. 160+50.61
Match to existing pavement

r.o.w.

Sta. 160+99.97

Driveway-2
See Detail
Sheet 23

Limits of Grading

Driveway-4
See Detail
Sheet 23

Driveway-3
See Detail
Sheet 23

Drain Inlet #1
See SDOT Std.
Detail H-13, Type 1211216P
Top Elev.= 8.68

Drain Inlet #3
See SDOT Std.
Detail H-13, Type 1211216P
Top Elev.= 8.51

Top Elev.= 8.54
Driveway-5
See Detail
Sheet 23

Sta. 165+00.60

Sta. 165+57.08
Match to existing pavement

TMK 8-7-23: 39
TMK 8-7-23: 58
TMK 8-7-23: 59
TMK 8-7-23: 1
TMK 8-7-23: 2
TMK 8-7-05: 5

e.s.
e.p.
E.P.
E.S.
To Waianae
160+00
161+00
162+00
163+00
164+00
165+00
166+00
Project Baseline
FARRINGTON HIGHWAY
To Nanakuli
8.92
9.06
9.71
9.29
9.07
9.12
9.88
9.51
9.34
9.72
8.75
8.87
9.01
8.97
9.69
9.92
9.65
9.78
9.21
9.95
8.98
8.70
9.48
8.84
9.72
9.00
1.00%
2.00%
1.50%
0.15%
0.08%
-2.00%
-0.30%
0.30%

exist. 24"
drainline

exist. storm
drain manhole
top=8.13 inv=3.38

exist. storm
drain manhole
top=9.17 inv=3.60

r.o.w.

Drain Inlet #2
See SDOT Std.
Detail H-09, Type 2A-9P
Top Elev.= 8.95

North Makai Wall
See Detail
This Sheet

Roadway ℄

Outlet Structure

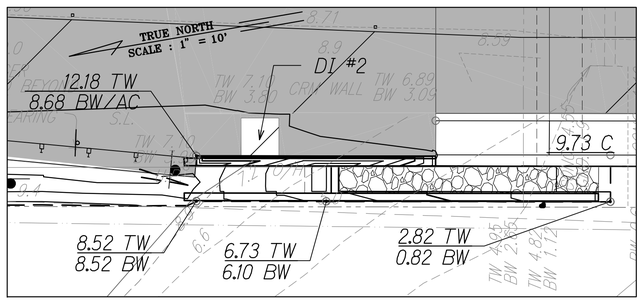
South Makai Wall
See Detail This Sheet

Drain Inlet #4
See SDOT Std.
Detail H-13, Type 1211216P
Top Elev.= 8.47

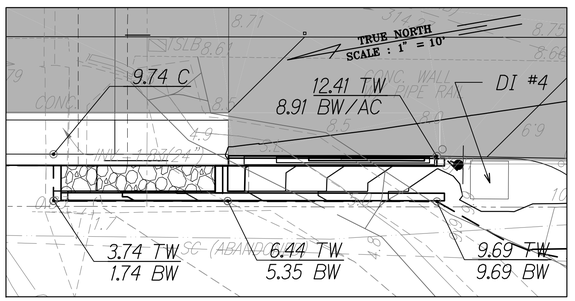
LEGEND:

- Conc. Swale
- AC Pavement
- AC Pavement Transition
- 9.00 Finished Elevation
- Limits of Grading
- 10 New Contour
- 10 existing contour

Grading Plan
SCALE: 1" = 20'



North Makai Detail
SCALE: 1" = 10'



South Makai Detail
SCALE: 1" = 10'

GRAPHICAL SCALE:

20' 10' 0 20' 40'
SCALE: 1" = 20'

10' 5' 0 10' 20'
SCALE: 1" = 10'

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING PLAN

FARRINGTON HIGHWAY
REPLACEMENT OF MAIPALAOA BRIDGE
FEDERAL AID PROJECT NO. BR-093-1(21)

Scale: AS NOTED Date: JULY 2011

SHEET No. 1 OF 1 SHEETS

ORIGINAL PLAN | NOTE BOOK | No. | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(21)	2013	18	93

TRUE NORTH
SCALE : 1" = 20'

T.M.K.: 8-7-23: 39

r.o.w.

6' Concrete Swale
See Det on Sht. 23

DI #1
Sta. ℄ 163+03 O/S 19' Lt.
See SDOT Std.
Detail H-13, Type 1211216P

DI #3
Sta. ℄ 164+91 O/S 19' Lt.
See SDOT Std.
Detail H-13, Type 1211216P

T.M.K.: 8-7-23: 1

6' Concrete Swale
See Det on Sht. 23

T.M.K.: 8-7-23: 3

T.M.K.: 8-7-23: 2

Maipalaoa Road

161+00 | 162+00 | 163+00 | 164+00 | 165+00 | 166+00

AHEAD | X-ING | AHEAD

Project Baseline

existing 24" drainline

6' Concrete Swale
See Det on Sht. 23

24" Drainline
See Profile-2 on Sht. 19

8" Water

24" Drainline
See Profile-3 on Sht. 19

Project Baseline

existing ductline

← To Waianae

FARRINGTON HIGHWAY

91.41'

91.41' row

Roadway ℄

To Nanakuli →

r.o.w.

30" Drainline
See Profile-1 Below

30" Drainline
See Profile-1 Below

24" Drainline
See Profile-1 Below

DI #2
Sta. ℄ 162+89 O/S 57' Rt.
See SDOT Std.
Detail H-09, Type 2A-9P

Channel Lining
See Det on Sht. 19

existing telecom. line

DI #4
Sta. ℄ 164+89 O/S 63' Rt.
See SDOT Std.
Detail H-13, Type 1211216P

Connect to exist. sdmh
℄ Sta. 161+54 O/S 58' Rt
Top= 8.13
Inv.= 3.38 (30" Out)

Outlet Structure #1
℄ Sta. 163+00 O/S 63' Rt
Inv.= 2.50 (30" Out)
See Det. Sht. 19

Outlet Structure #2
℄ Sta. 164+53 O/S 63' Rt
Inv.= 2.68 (24"Out)
See Det. Sht. 19

T.M.K.: 8-7-05: 5

PLAN
SCALE: 1" = 20'

existing ground along Centerline of Roadway

Maipalaoa Bridge
50.39' | 50.39'

Finish Ground Along Centerline of Roadway

exist. sdmh
Top= 8.13

DI #2
Top= 8.95

Outlet Structure #1
Top 6.83

Outlet Structure #2
Top= 6.15

DI #4
Top= 8.47

3' Min. Cover

℄ of Bridge
℄ Sta. 63+83.94 =
℄ Sta. 163+84.03

HGL

RC Wall
Top 3.15

RC Wall
Top 3.62

exist. bridge abutment typ.

L= 136', S= 0.50% 30" Drainline

L= 11', S= 0.50% 30" Drainline

Channel Lining
Min. 6" Under Outlet Struct.

6" MIN.

exist. abutment piles typ.

Bridge Abutment, Typ.

L= 36', S= 0.76% 24" Drainline

℄ Sta. 161+54

3.38 30" (Out)

existing ductline

Riprap Channel
Invert 1.60

℄ Sta. 162+89

℄ Sta. 163+00

2.50 30" (Out)

2.70 30" (In)
2.57 24" (In)
2.57 30" (Out)

Approximate Debris Line

≈(-)2.735

Approximate Location of Existing Channel Lining

Riprap Channel
Invert 1.71

℄ Sta. 164+53

2.68 24" (Out)

℄ Sta. 164+89

2.95 24" (In)
2.96 24" (Out)

(-)2.735≈

10 | 8 | 6 | 4 | 2 | 0 | -2 | -4 | -6

160+60 | 161+00 | 161+40 | 161+80 | 162+20 | 162+60 | 163+00 | 163+40 | 163+80 | 164+20 | 164+60

PROFILE-1
SCALE: HORIZ 1" = 20'
VERT 1" = 2'

ORIGINAL PLAN
NOTE BOOK
No.

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN

FARRINGTON HIGHWAY
REPLACEMENT OF MAIPALAOA BRIDGE
FEDERAL AID PROJECT NO. BR-093-1(21)

Scale: AS NOTED Date: JULY 2011

SHEET No. 1 OF 1 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(21)	2013	20	93

T.M.K.: 8-7-23: 39

T.M.K.: 8-7-23: 1

TRUE NORTH
SCALE : 1" = 20'

r.o.w.

Begin Waterline A Sta. 0+00.00
℄ Sta. 162+42.73 O/S 12' Lt.
Connect to exist. waterline
1- 8" 1/8 Bend
2- GV CL 150 and Box
1- Conc. Block w/Struct. Struts
1- 8" Sleeve, 12" Long
8 LF 8" DI pipe, CL52
Temp for Testing
1- 8" Cap w/ 2 1/2" C.O.
1- Conc. Block

Cut and Plug
Exist. 8" Waterline

Waterline A Sta. 0+13.49
℄ Sta. 162+51.68 O/S 2' Lt.
1- 8" x 8" Tee
1- Conc. Block
1- GV CL 150 and Box

MAILI STREAM
T.M.K.: 8-7-23: 58

SLOPE EASEMENT

End Waterline A Sta. 3+38.85
℄ Sta. 164+80.77 O/S 11' Lt.
Connect to exist. waterline
1- 8" 1/4 Bend
1- 8" GV CL 150 and Box
1- Conc. Block w/Struct. Struts
1- 8" Sleeve, 12" Long
8 LF 8" DI pipe, CL52
Temp for Testing
1- 8" Cap w/ 2 1/2" C.O.
1- Conc. Block

MAIPALAOA ROAD

161+00
162+00
163+00
164+00
165+00
166+00

existing 8" waterline

91.87' row

AHEAD AHEAD

X-ING X-ING

PED PED

To Waianae

Baseline

FARRINGTON HIGHWAY

9°48' 00"

Cut and Plug
Exist. 8" Waterline

existing 8" waterline

91.41' row

fiber optic ductline

r.o.w

30" Drainline

8" Waterline A

Roadway ℄

24" Drainline

To Nanakuli

3/4" ARV Valve

1+00

2+00

3+00

Waterline A Sta. 0+93.60
℄ Sta. 163+04.91 O/S 58' Rt.
1- 8" 1/8 Bend
1- Conc. Block

existing telecom. line

Waterline A Sta. 1+73.02
℄ Sta. 163+83.58 O/S 58' Rt.
1" Gap with 8" DI Sleeve At
Center Of Span

Waterline Attached to the
Bridge, See Structural Plans

Waterline A Sta. 2+69.45
℄ Sta. 164+80.76 O/S 58' Rt.
1- 8" 1/4 Bend
1- Conc. Block

T.M.K.: 8-7-05: 5
MAILI BEACH PARK

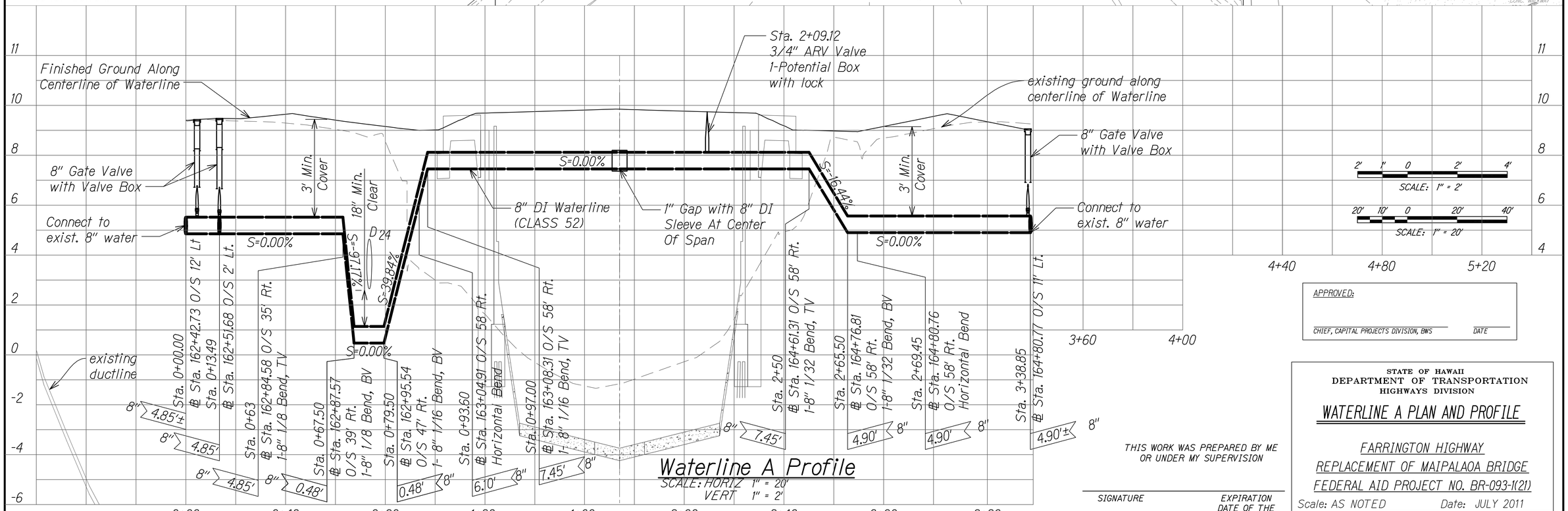
NOTES:

1. Maintain service and coordinate with BWS until ready to tie into existing.
2. The entire length of exposed pipe shall be coated with an approved bitumastic paint per BWS Std.
3. Underground utilities shown are for information only. Contractor shall be responsible to verify prior to construction.

Waterline A Plan

SCALE: 1" = 20'

GRAPHICAL SCALE:
20' 10' 0 20' 40'
SCALE: 1" = 20'



Waterline A Profile

SCALE: HORIZ 1" = 20'
VERT 1" = 2'

2' 1' 0 2' 4'
SCALE: 1" = 2'

20' 10' 0 20' 40'
SCALE: 1" = 20'

APPROVED:

CHIEF, CAPITAL PROJECTS DIVISION, BWS DATE

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
NOTE BOOK	TRACED BY	
	DESIGNED BY	
No.	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WATERLINE A PLAN AND PROFILE

FARRINGTON HIGHWAY
REPLACEMENT OF MAIPALAOA BRIDGE
FEDERAL AID PROJECT NO. BR-093-1(21)

Scale: AS NOTED Date: JULY 2011

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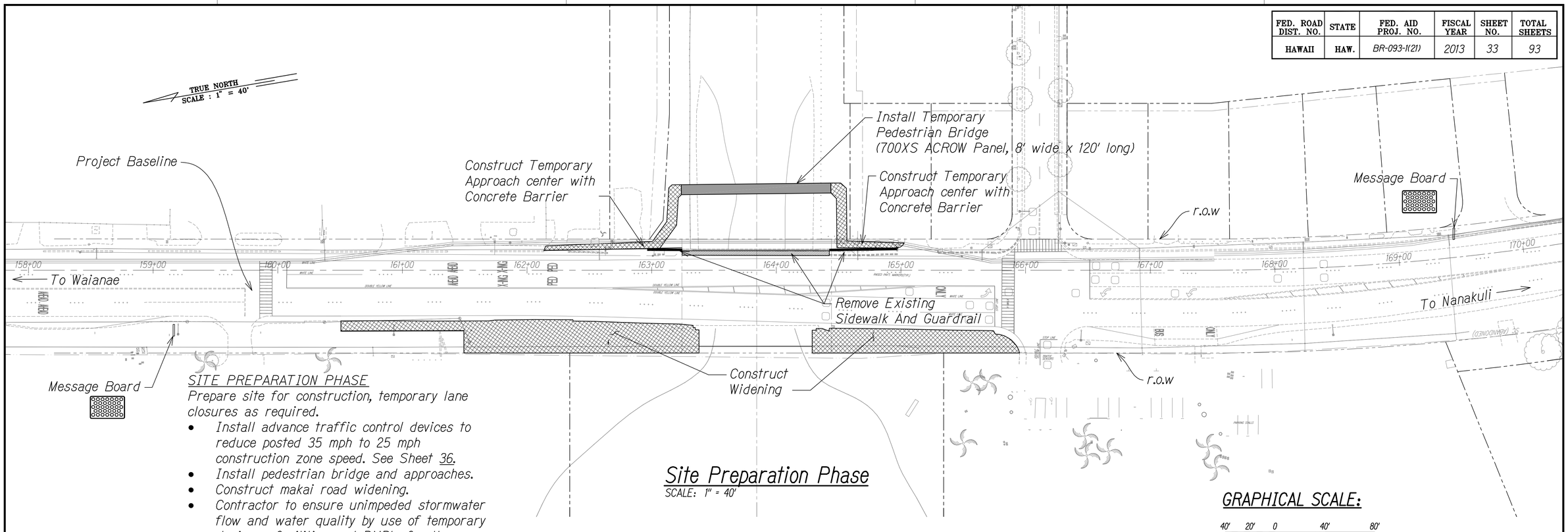
SHEET No. 1 OF 1 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(21)	2013	33	93

TRUE NORTH
SCALE : 1" = 40'



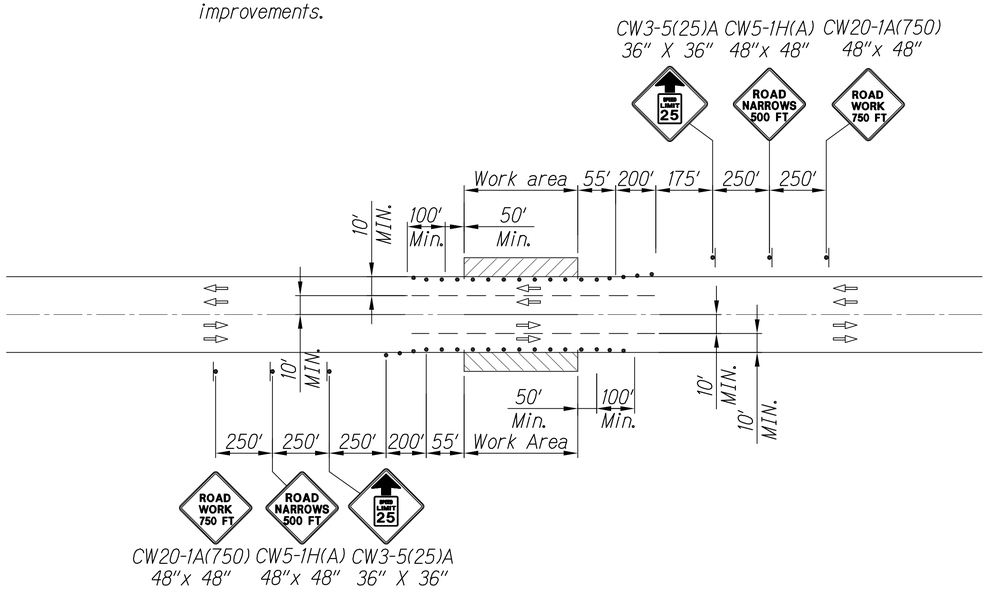
Site Preparation Phase

SCALE: 1" = 40'

SITE PREPARATION PHASE

Prepare site for construction, temporary lane closures as required.

- Install advance traffic control devices to reduce posted 35 mph to 25 mph construction zone speed. See Sheet 36.
- Install pedestrian bridge and approaches.
- Construct makai road widening.
- Contractor to ensure unimpeded stormwater flow and water quality by use of temporary drainage facilities and BMP's for the duration of the construction of bridge abutments, retaining walls and drainage improvements.



INSET A

GRAPHICAL SCALE:

40' 20' 0 40' 80'

SCALE: 1" = 40'

NOTES:

1. See Inset A shows Traffic Control Plan Signage for Makai Bridge Construction.
2. See sheet 8 for Traffic Control Notes and additional dimensions.
3. Remove and replace existing striping with temporary striping as indicated on the plans.
4. Contractor shall coordinate access to driveways during construction.

LEGEND:

- Sign
- Cone Or Delineator
- Police Officer/Flagger
- Concrete Barrier
- Message Board
- Temp. Pedestrian Bridge
- Temp. Approach and Widening

ORIGINAL PLAN
NOTE BOOK
No.
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

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EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

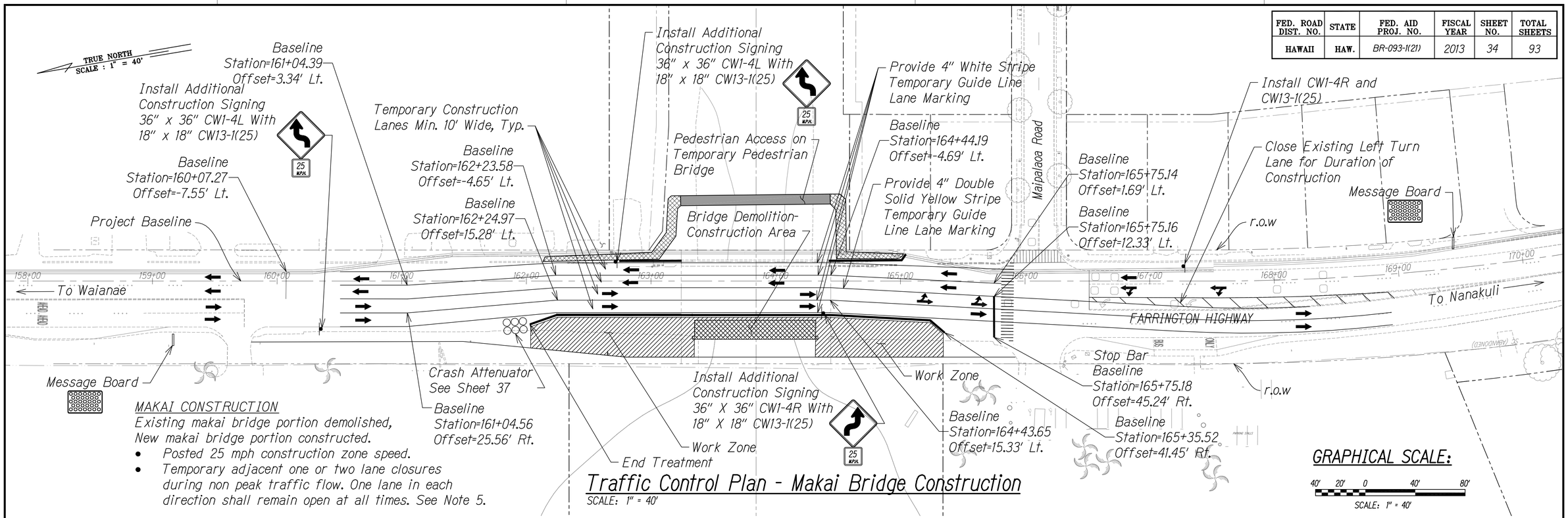
TRAFFIC CONTROL PLAN - 1

FARRINGTON HIGHWAY
REPLACEMENT OF MAIPALAOA BRIDGE
FEDERAL AID PROJECT NO. BR-093-1(21)

Scale: AS NOTED Date: JULY 2011

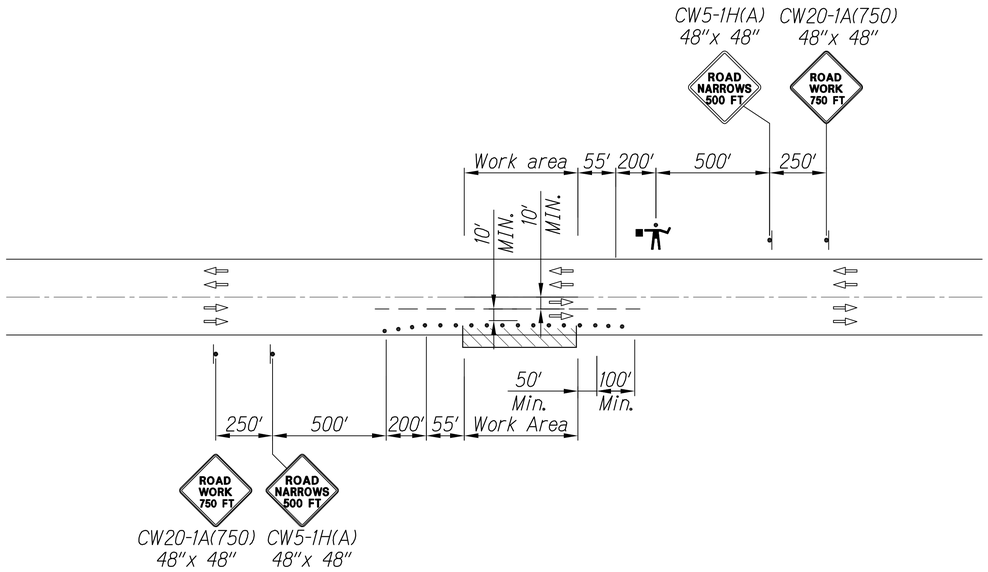
SHEET No. 1 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(21)	2013	34	93



Traffic Control Plan - Makai Bridge Construction

SCALE: 1" = 40'



INSET A

NOTES:

1. See Inset A shows Traffic Control Plan Signage for Makai Bridge Construction.
2. See sheet 8 for Traffic Control Notes and additional dimensions.
3. Remove and replace existing striping with temporary striping as indicated on the plans.
4. Contractor shall coordinate access to driveways during construction.
5. Peak Traffic Hours shall be from 6:45am-7:45am and 3:00pm-4:00pm, referenced from 2009 HDOT Traffic Station Maps.

LEGEND:

- Sign
- Cone Or Delineator
- Police Officer/Flagger
- Concrete Barrier
- Message Board
- Direction of Traffic
- Direction of Traffic
- Crash Attenuator
- Temp. Pedestrian Bridge
- Temp. Approach and Widening

ORIGINAL PLAN
NOTE BOOK
No.
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
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EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN - 2

FARRINGTON HIGHWAY
REPLACEMENT OF MAIPALAOA BRIDGE
FEDERAL AID PROJECT NO. BR-093-1(21)

Scale: AS NOTED Date: JULY 2011

SHEET No. 2 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(21)	2013	35	93

TRUE NORTH
SCALE : 1" = 40'

Temporary Construction Lanes Min. 10' Wide, Typ.

Install Additional Construction Signing 36" x 36" CW1-4L With 18" x 18" CW13-1(25)

Baseline Station=164+44.19 Offset=4.71' Lt.

Maipalaoa Road

Provide 4" White Stripe Temporary Guide Line Lane Marking

Baseline Station=161+04.43 Offset=3.28' Lt.

End Treatment

Crash Attenuator See Sheet 37

Project Baseline

Pedestrian Access on Temporary Pedestrian Bridge

Work Zone

Baseline Station=162+24.20 Offset=4.67' Lt.

Baseline Station=165+71.80 Offset=34.37' Rt.

Work Zone

Baseline Station=165+81.04 Offset=2.02' Lt.

Install Additional Construction Signing 36" x 36" CW1-4L With 18" x 18" CW13-1(25)

Close Existing Left Turn Lane for Duration of Construction

Message Board

Baseline Station=166+46.73 Offset=34.22' Rt.

r.o.w

158+00 159+00 160+00 161+00 162+00 163+00 164+00 165+00 166+00 167+00 168+00 169+00 170+00

To Waianae

FARRINGTON HIGHWAY

To Nanakuli

Message Board

Install CW1-4R and CW13-1(25)

Baseline Station=160+50.62 Offset=14.32' Rt.

Baseline Station=160+50.62 Offset=25.72' Rt.

Provide 4" Yellow Stripe Temporary Guide Line Lane Marking

Baseline Station=162+80.21 Offset=49.01' Rt.

Install Additional Construction Signing 36" x 36" CW1-4L With 18" x 18" CW13-1(25)

Provide 4" White Stripe Temporary Guide Line Lane Marking

End Treatment

r.o.w

Stop Bar

Baseline Station=165+40.49 Offset=49.03' Rt.

Baseline Station=165+73.18 Offset=44.48' Rt.

Traffic Control Plan - Center Bridge Construction

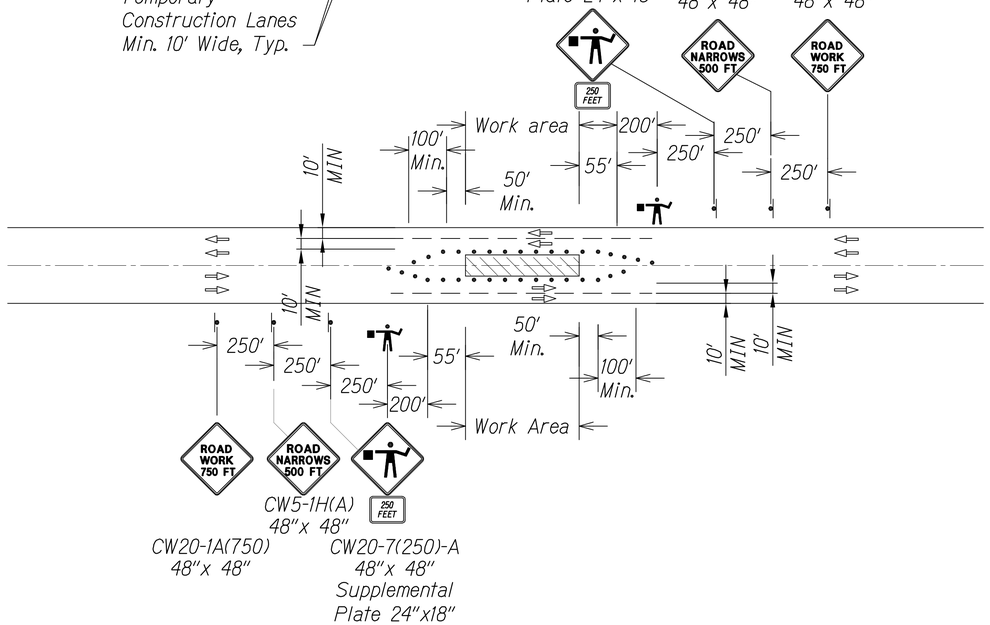
SCALE: 1" = 40'

Temporary Construction Lanes Min. 10' Wide, Typ.

CW20-7(250)-A 48"x 48" Supplemental Plate 24"x 18"

CW5-1H(A) 48"x 48"

CW20-1A(750) 48"x 48"



INSET A

CENTER CONSTRUCTION
Existing center bridge portion demolished,
New center bridge portion constructed.

- Posted 25 mph construction zone speed
- Temporary adjacent one or two lane closures during non peak traffic flow. One lane in each direction shall remain open at all times. See Note 5.

NOTES:

1. See Inset A shows Traffic Control Plan Signage for Makai Bridge Construction.
2. See sheet 8 for Traffic Control Notes and additional dimensions.
3. Remove and replace existing striping with temporary striping as indicated on the plans.
4. Contractor shall coordinate access to driveways during construction.
5. Peak Traffic Hours shall be from 6:45am-7:45am and 3:00pm-4:00pm, referenced from 2009 HDOT Traffic Station Maps.

LEGEND:

- Sign
- Cone Or Delineator
- Police Officer/Flagger
- Concrete Barrier
- Message Board
- Direction of Traffic
- Direction of Traffic
- Crash Attenuator
- Temp. Pedestrian Bridge
- Temp. Approach and Widening

GRAPHICAL SCALE:

40' 20' 0 40' 80'
SCALE: 1" = 40'

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN - 3

FARRINGTON HIGHWAY
REPLACEMENT OF MAIPALAOA BRIDGE
FEDERAL AID PROJECT NO. BR-093-1(21)

Scale: AS NOTED Date: JULY 2011

SHEET No. 3 OF 4 SHEETS

ORIGINAL PLAN
NOTE BOOK
No.
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QUANTITIES BY
CHECKED BY
DATE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(21)	2013	36	93

TRUE NORTH
SCALE : 1" = 40'

Mauka Construction Zone, Existing Mauka Bridge Portion Demolished, New Mauka Bridge Constructed

Provide 4" Double Solid Yellow Stripe Temporary Guide Line Lane Marking

Provide 4" White Strip Temporary Guide Line Lane Marking

Bridge Demolition-Construction Area

Pedestrian Access on Temporary Pedestrian Bridge

Maipalaoa Road

Baseline Station=165+32.13 Offset=29.02' Rt.

Install Additional Construction Signing 36" x 36" CW1-4L With 18" x 18" CW13-1(25)

Install CW1-4R and CW13-1(25)

End Treatment Crash Attenuator See Sheet 37

Project Baseline

Construction Staging Area

Construction Staging Area

Message Board

Baseline Station=162+80.76 Offset=39.06' Rt.

Baseline Station=165+32.73 Offset=39.02' Rt.

r.o.w

158+00 159+00 160+00 161+00 162+00 163+00 164+00 165+00 167+00 168+00 169+00 170+00

To Waianae

To Nanakuli

FARRINGTON HIGHWAY

Baseline Station=165+76.19 Offset=13.42' Rt.

Stop Bar Baseline Station=165+75.53 Offset=23.81' Rt.

Message Board

Install CW1-4R and CW13-1(25)

Baseline Station=160+47.65 Offset=14.35' Lt.

Temporary Construction Lanes Min. 10' Wide, Typ.

Install Additional Construction Signing 36" x 36" CW1-4L With 18" x 18" CW13-1(25)

r.o.w

Close Existing Left Turn Lane for Duration of Construction

Baseline Station=165+33.33 Offset=48.87' Rt.

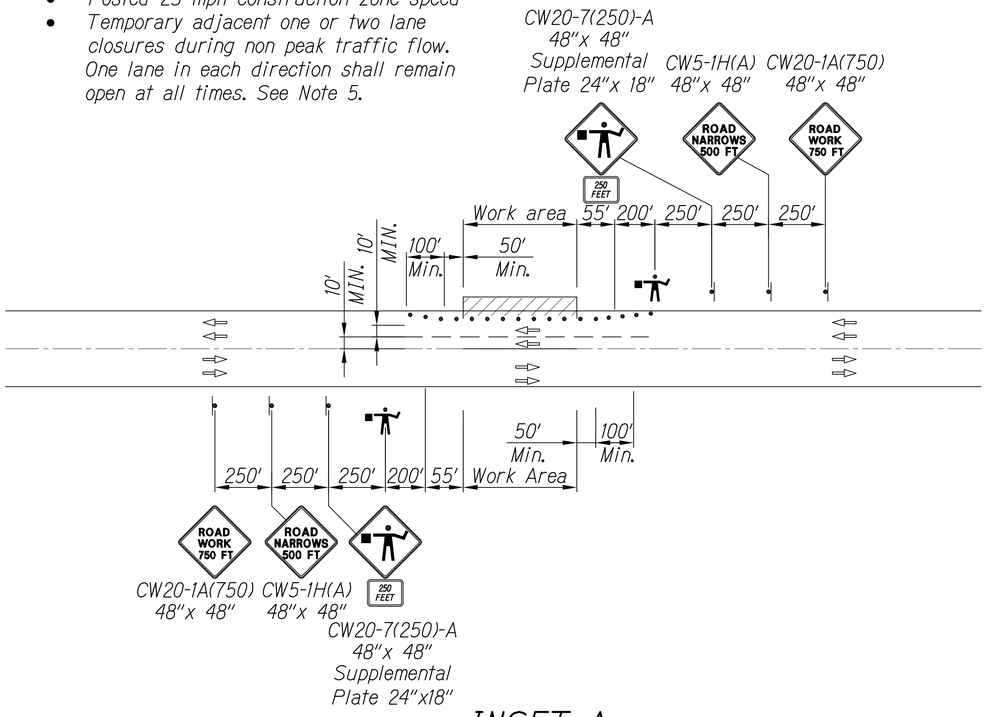
Traffic Control Plan - Mauka Bridge Construction

SCALE: 1" = 40'

MAUKA CONSTRUCTION

Existing mauka bridge portion demolished, New mauka bridge portion constructed.

- Posted 25 mph construction zone speed
- Temporary adjacent one or two lane closures during non peak traffic flow. One lane in each direction shall remain open at all times. See Note 5.



INSET A

NOTES:

1. See Inset A shows Traffic Control Plan Signage for Makai Bridge Construction.
2. See sheet 8 for Traffic Control Notes and additional dimensions.
3. Remove and replace existing striping with temporary striping as indicated on the plans.
4. Contractor shall coordinate access to driveways during construction.
5. Peak Traffic Hours shall be from 6:45am-7:45am and 3:00pm-4:00pm, referenced from 2009 HDOT Traffic Station Maps.

LEGEND:

- Sign
- Cone Or Delineator
- Police Officer/Flagger
- Concrete Barrier
- Message Board
- Direction of Traffic
- Direction of Traffic
- Crash Attenuator
- Temp. Pedestrian Bridge
- Temp. Approach and Widening

GRAPHICAL SCALE:

40' 20' 0 40' 80'

SCALE: 1" = 40'

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NOTE BOOK
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DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN - 4

FARRINGTON HIGHWAY
REPLACEMENT OF MAIPALAOA BRIDGE
FEDERAL AID PROJECT NO. BR-093-1(21)

Scale: AS NOTED Date: JULY 2011

SHEET No. 4 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(21)	2013	38	93

PAVEMENT MARKING LEGEND:

4 each Type A Raised Pavement Markers
Type C Raised Pavement Markers @ 40'-0" o.c.

4 each Type J Raised Pavement Markers
Type D Raised Pavement Markers @ 40'-0" o.c.

8" White Stripe with Type C Raised Pavement Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)

4" Double Solid Yellow with Type D Raised Pavement Markers @ 20'-0" o.c. (Tape, Type II or Thermoplastic Extrusion)

4" Double Solid Yellow with Type H Raised Pavement Markers @ 20'-0" o.c. (Tape, Type II or Thermoplastic Extrusion)

4" Yellow Edge Stripe with Type H Raised Pavement Markers @ 40'-0" o.c. (Tape, Type II or Thermoplastic Extrusion)

4" Double Solid White Stripes with Type C Raised Pavement Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)

Lane Change Restriction Marking
4 each Type A Raised Pavement Markers
Type C Raised Pavement Markers @ 20'-0" o.c.
4" White Stripe (Tape, Type I or Thermoplastic Extrusion)

4" or 8" White Edge Stripe with Type C Raised Pavement Markers @ 40'-0" o.c. (Tape, Type II or Thermoplastic Extrusion)

4" White Guide Lines (Tape, Type III or Thermoplastic Extrusion except for bus bays)

Transverse Median Marking (Tape, Type II or Thermoplastic Extrusion)

Transverse Shoulder Marking (Tape, Type II or Thermoplastic Extrusion)

Channelizing Island or Deceleration Lane Gore (Tape, Type II or Thermoplastic Extrusion)

② Crosswalk and Stop Line. All Stop Lines shall be 10'-0" from Crosswalk unless otherwise noted. The circled number indicates the number of lanes for payment (Tape, Type III or Thermoplastic Extrusion)

Pavement Arrow (Tape, Type III or Thermoplastic Extrusion)

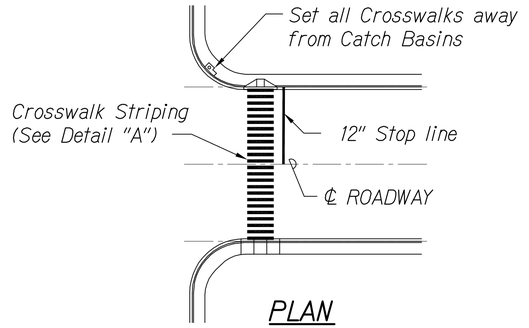
STOP Pavement Word (Tape, Type III or Thermoplastic Extrusion)

4 each Type J Raised Pavement Markers
Type D Raised Pavement Markers @ 40'-0" o.c.
Type H Raised Pavement Markers (Reflective Surface facing no-passing direction)
4" Single Solid Yellow Stripe (Tape, Type I or Thermoplastic Extrusion)

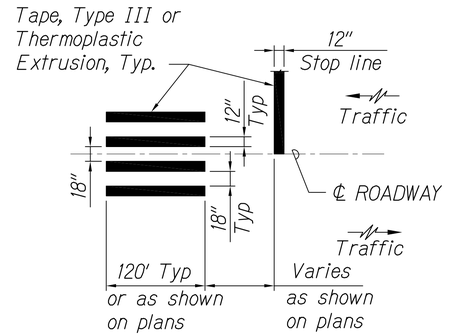
10' 10' 10' 10' Extension of Edge Line, 4" Wide x 2'-0" Long White Stripe @ 10'-0" o.c. w/Type C Markers @ 40'-0" o.c. (Tape, Type III or Thermoplastic Extrusion)

NOTES:

1. Layout of pavement markings and striping shall be done by the Contractor and approved by the Engineer prior to any installation work.
2. Existing pavement markings and striping not incorporated in the final traffic pattern shall be removed as directed by the Engineer. Costs shall be incidental to the various pavement marking items.
3. Raised pavement markers shall not be installed within crosswalks.
4. Final locations of all signs shall be approved by the Engineer prior to any installation work.
5. Existing signs not shown on these plans shall remain as posted unless otherwise directed by the Engineer. Removal and disposal of existing signs and/or posts as designated on these plans shall be incidental to the various signing items.
6. Final locations of all Stop Lines shall be approved by the Engineer prior to installation.
7. All pavement striping shall be as noted on the legend or plans.
8. All preformed pavement marking tapes over existing pavement shall be applied with an approved primer as recommended by the tape manufacturer and as approved by the Engineer. The primer shall be allowed to dry to the tacky stage prior to tape application.
9. Curb marking shall include top and front face of curb.
10. Backing for all new regulatory and warning signs shall not be spliced.
    All sign panels shall conform to the latest editions and amendments of the following FHWA publications:
    a. "Manual on Uniform Traffic Control Devices for Street and Highways" (MUTCD)
    b. "Standard Highway Signs"
    c. "Standard Alphabet for Highway Signs"
11. All panels shall be reflectorized in accordance with Section 750.01 of the Standard Specifications. Minimum width of panels shall be 2 feet, abutting edges of panels shall be in only one direction if vertical abutting edges are used, no horizontal abutting edges shall be allowed and vice versa.
12. All new and relocated signs and markers installed on pipe posts, light standard or expressway sign post are to be mounted with band brackets and steel braces.
13. Final location of all sign post installed within the sidewalk areas shall maintain a minimum clearance width of 36 inches from sidewalk edge to provide for wheelchair accessibility.
14. Removing existing signs and reinstalling on new post shall not be paid for separately, but shall be considered incidental to the various signing items.
15. Signs placed along bikeways shall have a minimum height clearance of 10'-0".
16. All existing sign post(s) to remain within the sidewalk area shall meet the minimum clear width of 36 inches from the sidewalk edge. Where necessary, the existing sign post(s) shall be relocated to meet the minimum clear width. this work shall not be paid for separately but shall be considered incidental to the various signing items.
17. All pavement markings disturbed during the construction beyond the limits of the Project, shall be striped to its original layout. Cost of this work shall be considered incidental to various contract items.
18. Removing and Reinstalling existing Street Name Signs on Regulatory and Warning Signs Post shall not be paid for separately but shall be considered incidental to the various Signing Items.
19. install Type II Object Marker on all utility poles or trees that are within the State Highway right-of-way and within 50 feet of the roadway edge of pavement shall be marked as directed by the Engineer.



PLAN



DETAIL "A"

CROSSWALK STRIPING DETAIL

Scale: N.T.S.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	TRACED BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

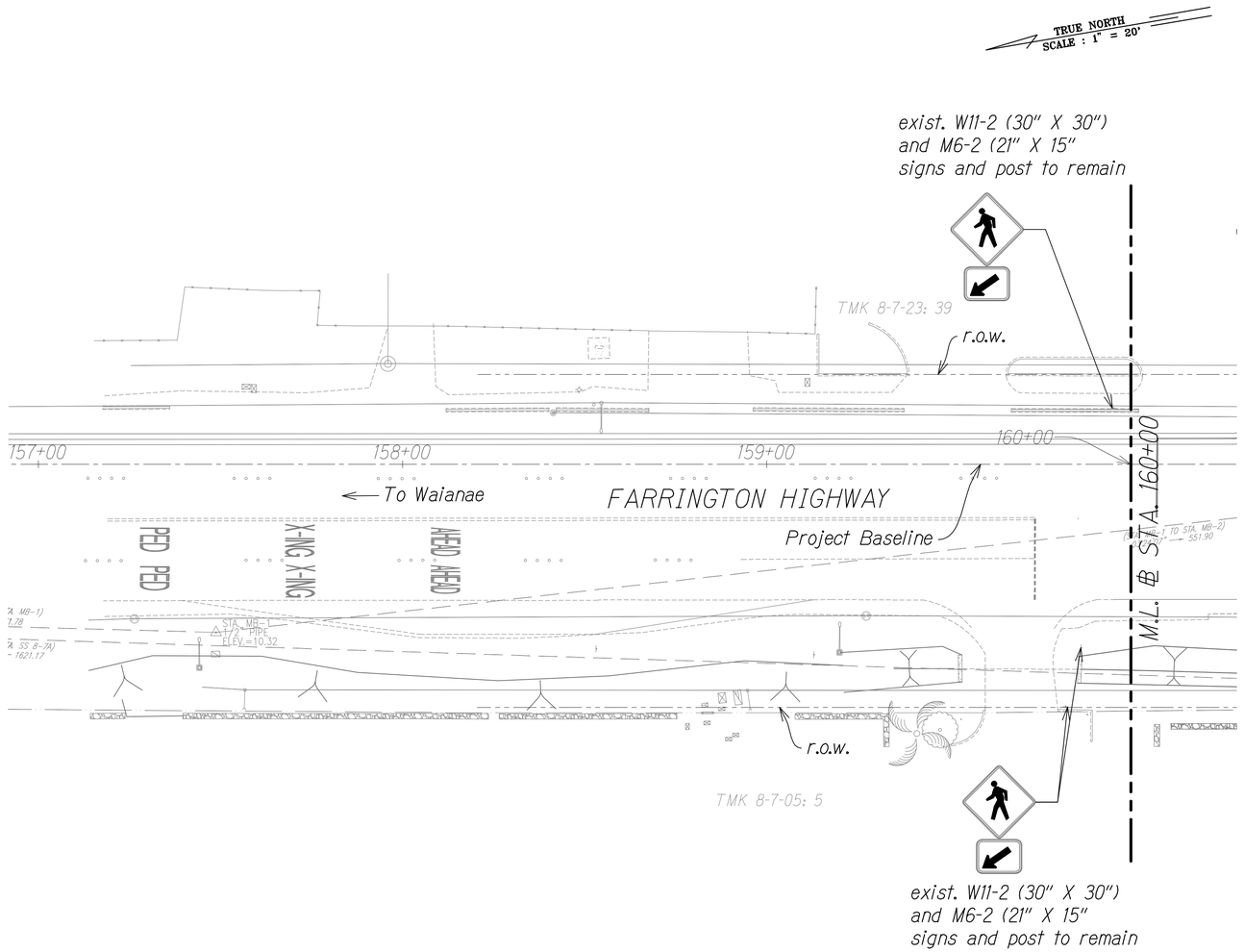
SIGNING AND PAVEMENT MARKING PLAN - 1

FARRINGTON HIGHWAY
REPLACEMENT OF MAIPALAOA BRIDGE
FEDERAL AID PROJECT NO. BR-093-1(21)

Scale: AS NOTED Date: JULY 2011

SHEET No. 1 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(21)	2013	39	93



Signing and Pavement Marking Plan

SCALE: 1" = 20'

GRAPHICAL SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	TRACED BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

SIGNATURE

EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

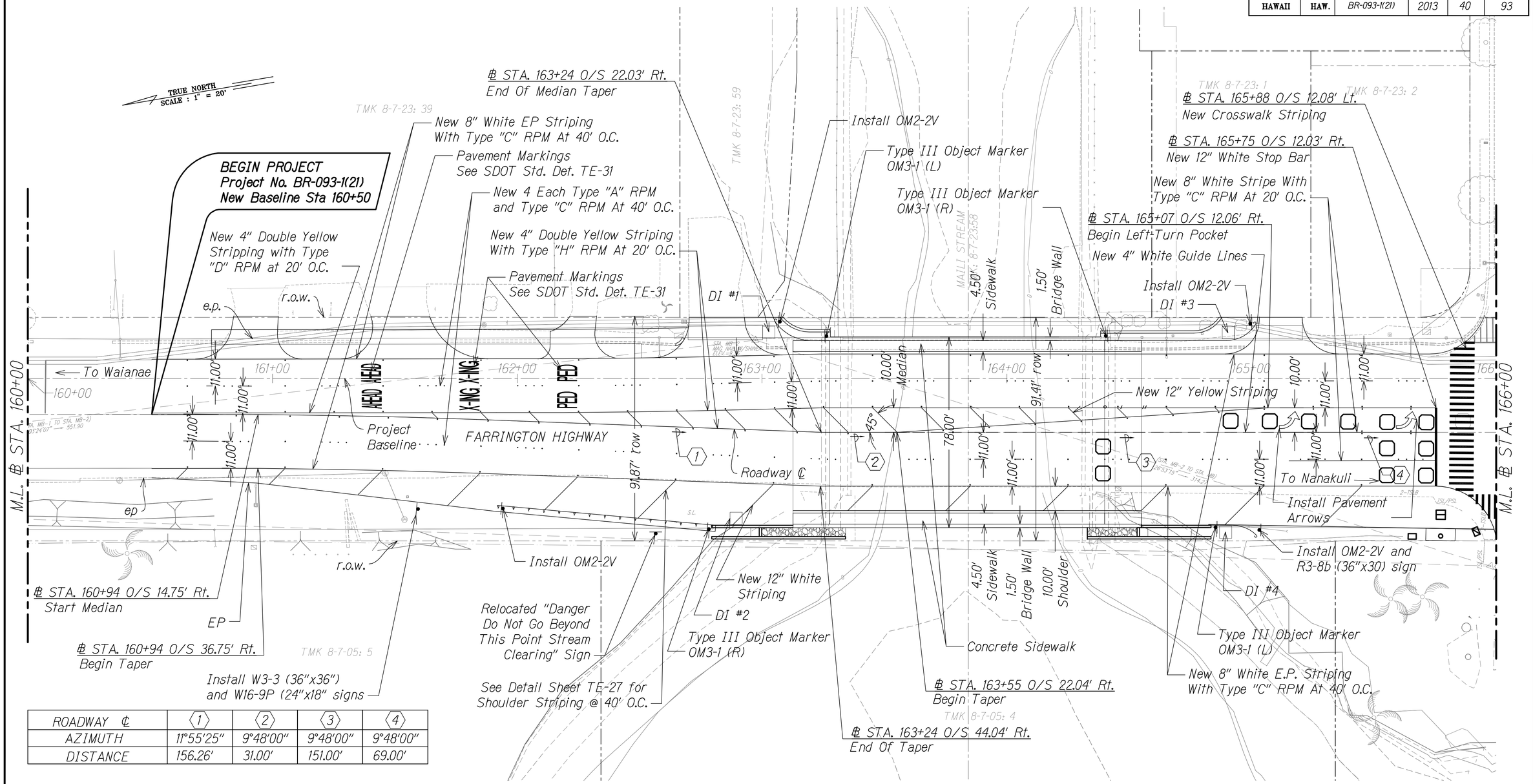
SIGNING AND PAVEMENT MARKING PLAN - 2

FARRINGTON HIGHWAY
REPLACEMENT OF MAIPALAOA BRIDGE
FEDERAL AID PROJECT NO. BR-093-1(21)

Scale: AS NOTED Date: JULY 2011

SHEET No. 2 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(21)	2013	40	93



ROADWAY ℄	1	2	3	4
AZIMUTH	11°55'25"	9°48'00"	9°48'00"	9°48'00"
DISTANCE	156.26'	31.00'	151.00'	69.00'

Signing and Pavement Marking Plan

SCALE: 1" = 20'

GRAPHICAL SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

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SIGNATURE

EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING AND PAVEMENT MARKING PLAN - 3

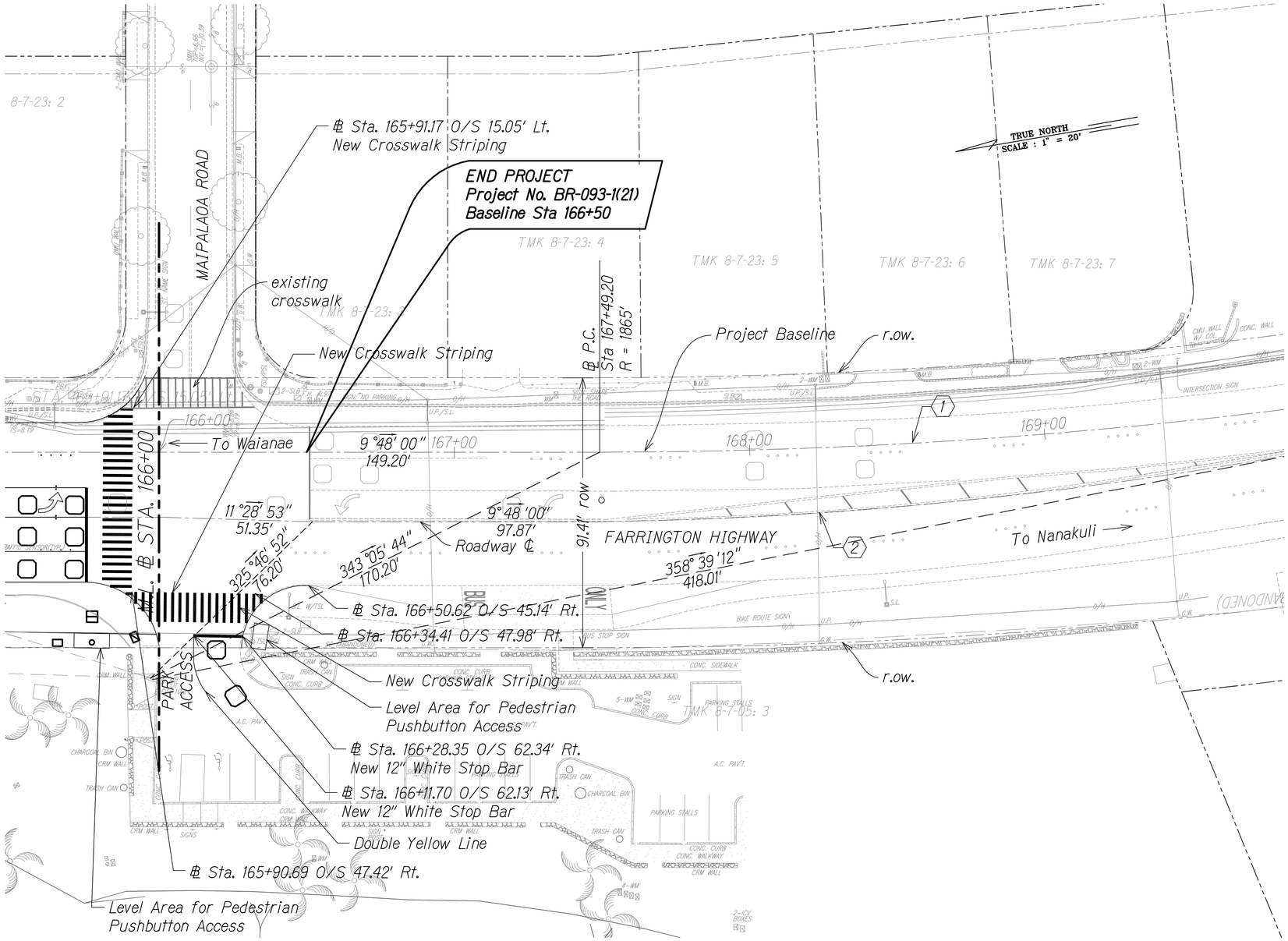
FARRINGTON HIGHWAY
REPLACEMENT OF MAIPALAOA BRIDGE
FEDERAL AID PROJECT NO. BR-093-1(21)

Scale: AS NOTED Date: JULY 2011

SHEET No. 3 OF 4 SHEETS

ORIGINAL PLAN
NOTE BOOK
No.
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(21)	2013	41	93



Signing and Pavement Marking Plan

SCALE: 1" = 20'

CURVE	1 ℄	2 ℄
△	10°16'12"	8°51'12"
△/2	5°08'06"	4°25'36"
R	1865'	1415.20'
T	167.60'	109.55'
C	333.85'	218.46'
Lc	334.29'	218.67'

GRAPHICAL SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	TRACED BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING AND PAVEMENT MARKING PLAN - 4

FARRINGTON HIGHWAY
REPLACEMENT OF MAIPALAOA BRIDGE
FEDERAL AID PROJECT NO. BR-093-1(21)

Scale: AS NOTED Date: JULY 2011

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EXPIRATION DATE OF THE LICENSE

SHEET No. 4 OF 4 SHEETS